Extract from "White Paper on 100% renewable power for operation of CHST" (January 2011)

The Current Status of California Renewable Energy

In the current California marketplace, independent power producers (IPPs) respond to energy solicitations from the IOUs and MUs. Individual corporations, or aggregate customer organizations, are not allowed to solicit energy directly with IPP groups. Therefore, analyzing the progress of the IOUs, LADWP and Anaheim Public Utility Department (MU) towards meeting the state-mandated portfolio goals is the best way of understanding available renewable energy opportunities along the CAHST route.

Public Utilities Code Section 399.11 – 399.19, established in 2002 under Senate Bill 1078 (Sher) and modified in 2006 under Senate Bill 107 (Simitian), requires IOUs, electric service providers (ESPs) and community choice aggregators (CCAs) regulated by the California Public Utilities Commission (CPUC) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010. The CPUC and the California Energy Commission (CEC) are jointly responsible for implementing the program. Governor Schwarzenegger's Executive Orders S-14-08, issued on November 17, 2008, and S-21-09, issued on September 15, 2009, established a further goal of 33% renewable energy by 2020.

As of March 31, 2010 the CEC reports that utilizing the Renewables Portfolio Standard (RPS) Procurement process, the state's IOUs, Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric (IOU) have signed 206 contracts for 17,106 to 19,722 MW of new and existing renewable energy projects. These generation contracts are in response to the California legislature mandated RPS goals. Currently there are 2,481 MW of renewable generation capacity online, with a major portion of the remainder in the development and permitting stages.[(6)]

Based on the most recent California Public Utilities Commission (CPUC) report on RPS goals status reported to the California legislature, as of September 30, 2010, there are 3,493 MW of renewable energy in construction across the state.[(7)] This report states that as of December 31, 2009, the installed renewable capacity for the IOUs collectively reached 15.4% of their total 2009 electrical load, up from 13.90% in 2008. Some of the discrepancy between signed contracts compared to actual installed generation is that the CPUC must approve all IOU requested increases in generation facilities to match installed electrical demand to California electrical consumption growth projections, as well as availability of transmission lines to new generation sites. In addition, the majority of the IOU planned renewable generation facilities must go thru the prudent CEC permit review for all power plants over 50 MW.

The forecasted annual average percentage increase for IOUs, per the CEC, is 1.4% between the years 2008 to 2018, as shown in Table 5.[(8)] This shows the California total forecasted electrical consumption and demand loads of 325,220 GWH/year and 37,126 MWg in 2018 respectively, which is estimated by this report to reach 334,390 GWH/year and 38,173 MW by 2020. Using these forecasts, a reliable estimate for renewable electrical consumption and demand loads would be 110,349 GWH/year and 12,597 MWg in 2020. This corresponds to RPS target to meet 33% of the total California electrical load with renewable energy in 2020.

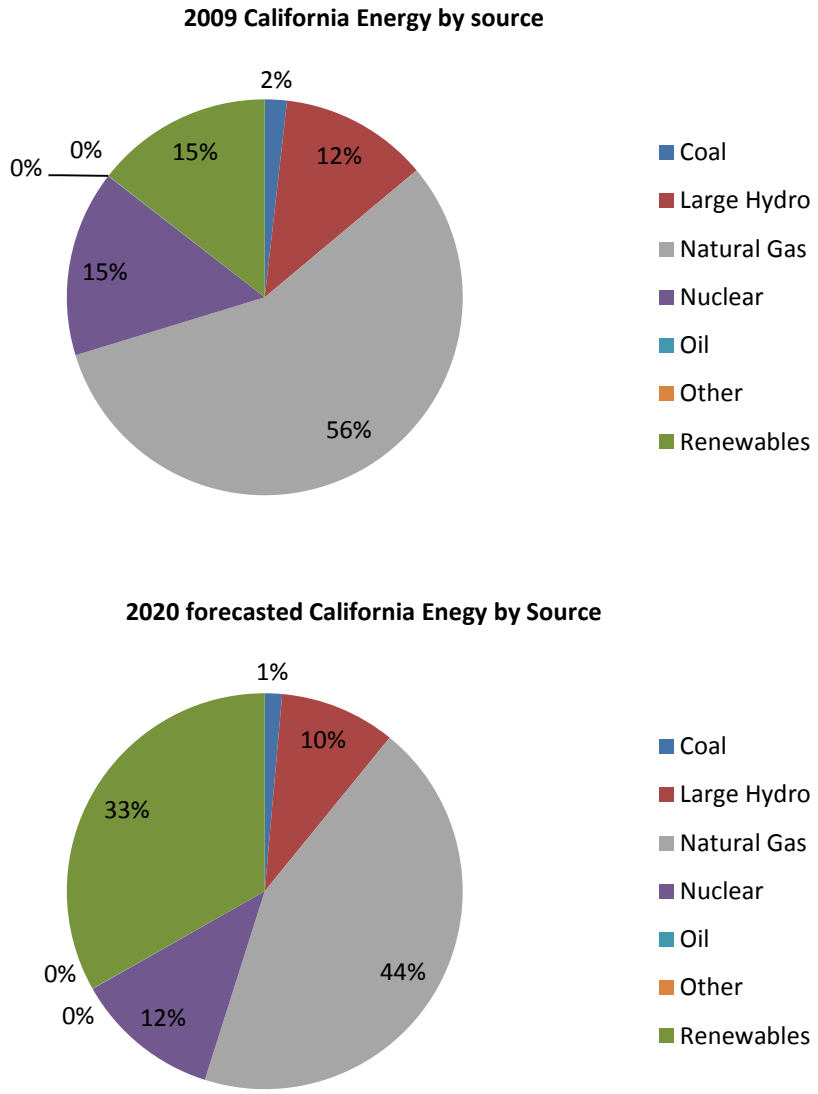

Figure 4: California Energy by Source (CEC)

Table 5: CA Electricity Consumption forecast by Utility Planning Area (CEC – 2007)[8]

Planning Area Annual Consumption Forecast GWH					Annual Growth Rates %		
	1990	2005	2008	2018	1990-2005	2005-2008	2008-2018
PG&E	86,803	101,460	107,929	122,336	1.0	2.1	1.3
SMUD	8,358	10,523	11,174	12,851	1.5	2.0	1.4
SCE	82,069	99,261	105,054	121,400	1.3	1.9	1.5
LADWP	23,263	24,638	25,921	27,154	.4	1.7	.5
SDG&E	14,926	19,910	21,304	24,567	1.9	2.3	1.4
Burbank-Glendale	2,069	2,201	2,245	2,305	.4	.7	.3
Pasadena	898	1,193	1,253	1,201	1.9	1.7	.4
Imperial	1,921	3,232	3,413	4,441	3.5	1.8	2.7
DWR	8,171	8,283	8,865	8,865	.1	2.3	0.0

The RPS Program at LADWP is more aggressive, with a goal of 40% renewable energy by 2020. LADWP reports for that for 2010 they had a 22% renewable energy supply in a total annual electric sales of 25,000 GWH. "LADWP has 305 MW of wind energy under contract; 57% of their total renewable mix, with near-future sales expected from facilities in Oregon, Washington, and Oregon. The Solar Generation Component of LADWP's RPS projects to acquire 50 MW of solar under contract by the end of 2010, and 1,280 MW of generation by 2020. LADWP currently has 4% of their total generation as geothermal and biomass energy; which is 18% of their total renewable energy mix. LADWP is developing 100 MW of geothermal power in the Salton Sea/Imperial Valley region and expect to procure an additional 50 MW of geothermal energy from resources in Utah."[9]

The City of Anaheim and their Anaheim Public Utility Department list in their 2007 Energy Portfolio Report[10] that 8.01% in renewable energy of their total of 124 GWH annual electricity sales. This renewable mix is made up of 36 MW of wind power, 6 MW of geothermal power, and 6 MW of biomass energy. The City of Anaheim projected in 2007 that 17.8% of their total generation would be served by renewable energy in 2010, and 20% by 2015.

One positive conclusion from the discussion above is that there is an abundance of IPP activity developing renewable projects and acquiring power contracts from IOUs and MUs. One cautionary note, that illustrates the need for timely conversations between the CAHSR and CAISO, concerns the schedule to install these renewable projects. There must be ample time for permitting, financing, and new transmission line construction. A prudent rule of thumb for an estimate of the interval between the initiation of a solicitation for renewable power by the IOUs thru plant construction, to the final plant commissioning is 4 - 5 years. These issues are being addressed by the CPUC, IOUs, MUs, and CEC but the earlier a need for renewable energy is indicated, the more time for development.

CAHSR Intent to Increase the Renewable Energy Pie.

A key assertion of the Navigant Report[1] is that the IOUs and MUs, as illustrated by the aggressive expansion of their RPS programs, could incorporate the CAHST demands within their current energy forecasts. The CAHSR's stated renewable energy policy is to meet the train operation demand with new, additional renewable energy. Fortunately, comparing the CAHSR total electrical demand and

consumption with the progress of the RPS as of March 31, 2010, it is just as feasible that the modest level of electrical consumption (1155 GWH/year in 2017, 2580 GWH/year in 2035, and the maximum total CAHSR Electrical Demand: 1100 MW net for normal passenger operations, metered at the substations) could be met with additional energy solicitations by the impacted IOU and MUs, above the present RPS mandate levels.